

LISTING OF CLAIMS:

On page 24, line 1, please delete the current heading "CLAIMS" and insert the following new heading:

--What is claimed is:--.

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A security element (2) comprising a layer composite (1) with microscopically fine optically effective structures (9) of a surface pattern (12), which are embedded between transparent layers (4; 5; 6) of the layer composite (1), wherein the optically effective structures (9) are shaped into a reflecting interface (8) between the layers (5; 6) in surface portions (13; 14; 15; 46) of a security feature (16) in a plane of the surface pattern (12), which is defined by co-ordinate axes (x; y),

~~characterised in that~~ wherein

at least one surface portion (13; 14; 15) of dimensions greater than 0.4 mm has comprises a diffraction structure (S; S*; S**) formed by additive or subtractive superimposition of a superimposition function (M) describing a macroscopic structure, with a microscopically fine relief profile (R), wherein the superimposition function (M), the relief profile (R) and the diffraction structure (S; S*; S**) are functions of the co-ordinates (x; y) and the relief profile (R) describes a light-diffracting or light-scattering, optically effective structure (9) which, following the superimposition function (M), retains the predetermined relief profile (R), and wherein ~~that~~ a central surface (33) defined by the at least portion-wise

steady superimposition function (M) is curved at least in partial regions and at any point has a local angle of inclination (γ) predetermined by the gradient of the superimposition function (M), is not a periodic triangular or rectangular function and changes slowly in comparison with the relief profile (R).

2. (Currently Amended) A security element (2) as set forth in claim 1, wherein ~~characterised in that~~ the superimposition function (M) is a portion-wise steady, periodic function with a spatial frequency (F) of at most 20 lines/mm.

3. (Currently Amended) A security element (2) as set forth in claim 1, wherein ~~characterised in that~~ the superimposition function (M) is an asymmetrical, portion-wise steady, periodic function with a spatial frequency (F) in the range of between 2.5 lines/mm and 10 lines/mm.

4. (Currently Amended) A security element (2) as set forth in claim 1, wherein ~~characterised in that~~ adjacent extreme values of the superimposition function (M) in the surface portion (13, 14, 15) are remote from each other by at least 0.025 mm.

5. (Currently Amended) A security element (2) as set forth in claim 2, wherein ~~one of claims 2 through 4 characterised in that~~ the relief profile (R) is a diffraction grating (32) of constant profile height (h), which has a grating vector with an azimuth angle (ϕ) and with a spatial frequency (F) of greater than 300 lines/mm.

6. (Currently Amended) A security element (2) as set forth in claim 2, wherein one of
~~claims 2 through 4 characterised in that~~ the relief profile (R) is an anisotropic matt structure
which has a preferred direction with an azimuth angle (ϕ) .
7. (Currently Amended) A security element (2) as set forth in claim 5, wherein or claim
~~6 characterised in that~~ the security feature (16; 16') has at least two adjacent surface portions
(13; 14; 15) and wherein that the first diffraction structure (S) is shaped in the first surface
portion (14) and the second diffraction structure (S*; S**) which differs from the first
diffraction structure (S) is shaped in the second surface portion (13; 15), wherein the grating
vector or the preferred direction of the first relief profile (R) in the first surface portion (14)
and the grating vector or the preferred direction of the second relief profile (R) in the second
surface portion (13; 15) are directed substantially parallel.
8. (Currently Amended) A security element (2) as set forth in claim 5, wherein one of
~~claims 5 through 7 characterised in that~~ in the diffraction structure (S; S*; S**) the grating
vector or the preferred direction of the relief profile (R) is substantially parallel to a gradient
plane which is determined by the gradient (38) of the superimposition function (M) and a
surface normal (21) which is perpendicular to the surface of the layer composite (1).
9. (Currently Amended) A security element (2) as set forth in claim 5, wherein one of
~~claims 5 through 8 characterized in that~~ shaped in a first surface portion (14) is the first
diffraction structure (S) which is formed as the sum of the relief profile (R) and the
superimposition function (M) and wherein that shaped in a second surface portion (13; 15) is

the second diffraction structure (S^*) which is formed as the difference ($R - M$) of the same relief profile (R) and the same superimposition function (M).

10. (Currently Amended) A security element (2) as set forth in claim 5, wherein one of claims 5 through 9 characterised in that in the diffraction structure ($S; S^*; S^{**}$) the grating vector or the preferred direction of the relief profile (R) is substantially perpendicular to a gradient plane which is determined by the gradient (38) of the superimposition function (M) and a surface normal (21) which is perpendicular to the surface of the layer composite (1).

11. (Currently Amended) A security element (2) as set forth in claim 3, wherein characterised in that the relief profile (R) is a diffraction grating (32) which has a grating vector with an azimuth angle (ϕ) and a spatial frequency (F) greater than 300 lines/mm, wherein that the surface portion (13; 14; 15) in each period ($1/F$) of the superimposition function (M) is subdivided into a number t of partial surfaces (47) of the width $1/(F \cdot t)$, wherein F is a spatial frequency of the superimposition function (M), wherein that the diffraction grating (32) of the diffraction structure ($S; S^*; S^{**}$), which is associated with the one partial surface (47), differs in at least one of the grating parameters from the diffraction gratings (32) of the adjacent partial surfaces (47), wherein that the subdivision and the occupation of the partial surfaces (47) with the diffraction structure ($S; S^*; S^{**}$) is repeated in each period ($1/F$) of the superimposition function (M) and wherein that the diffraction grating (32) has the azimuth angle (ϕ) and/or the spatial frequency (F) corresponding to the local inclination (γ) in the surface portion (47) and wherein that within each period ($1/F$) the grating parameters of the diffraction grating (32) step-wise or continuously traverse a

predetermined azimuth angle range ($\delta\varphi$) or a predetermined spatial frequency range (δf) respectively.

12. (Currently Amended) A security element (2) as set forth in claim 5, wherein one of claims 5, 6 and 11 characterised in that in the first surface portion (14) the first diffraction structure (S) is formed from the sum of the relief profile (R) and the superimposition function (M) and wherein that in the second surface portion (13; 15) the second diffraction structure (S**) is formed from the first diffraction structure (S), the second diffraction structure being the first diffraction structure which is mirrored at the plane of the surface pattern (12).

13. (Currently Amended) A security element (2) as set forth in claim 5, wherein characterised in that the diffraction structure (S) formed as the sum of the superimposition function (M) and the relief profile (R) is shaped in at least one surface portion (13; 14; 15), wherein that the spatial frequency (f_1) of the relief profile (R) is less than 2400 lines/mm and the superimposition function (M) has a local inclination (γ) measured in the diffraction plane (20) of the relief profile (R), wherein that the surface portion (13; 14; 15) adjoins a background field (46) of the security feature (16), wherein that the background field (46) parallel to the cover layer (4) has the central surface (33) with the local inclination $\gamma = 0^\circ$ into which a sinusoidal diffraction grating (32) with a second spatial frequency (f_2) and with a grating vector oriented in parallel in the diffraction plane (20) of the relief profile (R) is shaped, wherein that the second spatial frequency (f_2) is so selected that upon perpendicular illumination with white light (11) in ~~the~~ one viewing direction at a predetermined positive viewing angle ($+\theta$) the surface portion (13; 14; 15) and the background field (46) do not differ ~~in~~ with respect to ~~of~~ the color of the diffracted light and wherein that after a 180°

rotation of the layer composite (2) about the surface normal (21) at the negative viewing angle (-9) the surface portion (13; 14; 15) and the background field (46) differ with ~~in~~ respect to ~~of~~ the color of the diffracted light.

14. (Currently Amended) A security element (2) as set forth in claim 1, wherein ~~characterised in that~~ the relief profile (R) is an isotropic matt structure.

15. (Currently Amended) A security element (2) as set forth in claim 14, wherein ~~characterised in that~~ the superimposition function (M) describes a relief image.

16. (Currently Amended) A security element (2) as set forth in claim 14, wherein ~~characterised in that~~ the superimposition function (M) describes a portion of a sphere.

17. (Currently Amended) A security element (2) as set forth in claim 1, wherein one of ~~claims 1 through 16 characterised in that~~ the diffraction structure (S; S*; S**) is restricted to a structure height (H_{st}) of less than 40 μm and the superimposition function (M) is restricted to a variation value (H) of less than 30 μm , wherein the value (z) of the superimposition function (M), which is used in the diffraction structure (S; S*; S**) is equal to $\{(M) + C(x; y)\}$ modulo variation value (H) - $C(x; y)$, wherein the function $C(x; y)$ is restricted in amount to half the structure height (H_{st}).

18. (Currently Amended) A security element (2) as set forth in claim 1, wherein one of ~~claims 1 through 17 characterised in that further~~ surface elements (17; 18; 19) having the optically effective structures (9) are parts of the surface pattern (12) and ~~that~~ at least one of the structure elements (17; 18; 19) adjoins the security feature (16).

19. (Currently Amended) A security element (2) as set forth in claim 1, wherein one of
~~claims 1 through 18 characterised in that~~ arranged on at least one of the surface portions (13;
14; 15) is at least one identification mark (37) with an optically effective structure (9)
differing from the diffraction structure (S; S*; S**) and , wherein that identification mark
(37) which can be used as a reference for orientation of the layer composite (1) has comprises
an one of the optically effective structures structure comprising at least one of a (9) from the
group of diffractive relief structure, a or light-scattering relief structure and structures or a
mirror surface.